

CHAPTER 1

INTRODUCTION

Background

The steady growth of traffic in many urban neighborhoods has caused increasing concern nationwide, as it is often in conflict with non-motorized users of public streets. Strategic traffic management in such neighborhoods is aimed at eliminating or reducing these conflicts and thereby improving residential quality of life. Traffic calming is a traffic management strategy that combines physical and traffic control measures to reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street and road users.⁽¹⁾ In most neighborhoods, residents are concerned about safety as well as the degradation of quality of life that results from vehicle noise, speeding, cut-through traffic, exhaust emissions, and traffic-induced vibrations. Residents are increasingly working with elected officials, transportation engineers and other decision-makers to formulate ways to minimize these adverse impacts in such neighborhoods.

In response to the growing interest in traffic calming, the Institute of Transportation Engineers (ITE) developed a comprehensive publication entitled “Traffic Calming – State of the Practice”, which provides information about the history of traffic calming, traffic calming programs around the country and other traffic calming issues. The state of the practice of traffic calming varies from state to state and from city to city, as each jurisdiction fashions a traffic calming program to match the problems of its environment. For example, speed humps or bumps may be appropriate for use in some communities, but may be inappropriate in others for a number of reasons, either engineering- or community-related. This could also be the case for various other devices and geometrical designs that use vertical and horizontal diversions as traffic calming methods. This indicates that successful implementation of traffic calming measures must rely both on the careful application of engineering tools and the involvement of the local community.

Jurisdictions of all sizes that adopt comprehensive approaches to traffic calming involve their communities in the process. The following examples from the United States and Canada give a sense of much of what this document should cover. The Washington State Department of Transportation developed “A Guidebook for Residential Traffic Management” to outline its process for residential traffic management.⁽¹⁴⁾ The Guide covers an overview of traffic calming, a step-by-step process for program development and execution, a process for consensus building among stakeholders, a discussion of legal and political issues, and do’s and don’t’s for design, installation and monitoring.

Berkeley, California was probably the first U.S. city to implement traffic calming principles.⁽¹⁷⁾ Its early approach to keeping through traffic off residential streets involved horizontal diverters in 1964. Berkeley has also experienced periodic opposition to its traffic calming strategies but has prevailed over legal challenges brought by some residents. The California legislature, with the passage of Vehicle Code 21101(f), legitimized all existing diverters as design features. The city has developed a number of guiding criteria for installing speed bumps in response to concerns of the fire and police departments. Residents concerns are, of course, also heeded. The city’s roster of traffic

calming measures includes speed humps and tables, traffic circles, chicanes, neckdowns, textured pavement, street closures, and diagonal diverters.

Nepean, Ontario developed its neighborhood traffic management guide in 1995.⁽⁶⁾ The guide covers fundamental traffic-calming principles, community involvement, the role of departments and agencies, lists of approved devices and their impacts, implementing procedures, monitoring procedures for trial installations, processes for prioritization, and challenges to doing traffic calming right. It also outlines a clear process for conducting a traffic management study, an important step in the implementation of traffic calming measures.

Recognizing the need for structure in the traffic calming practice in Canada, the Transportation Association of Canada developed the “Canadian Guide to Neighborhood Traffic Calming”.⁽¹¹⁾ The guide was not intended to be used as a standard for implementation, since the term standard implies an exactitude that allows for little flexibility. The guide covers the principles of traffic calming, issues affecting implementation, a discussion of enabling legislation, a four-step process for developing a traffic calming plan, and the role for stakeholders.

These examples illustrate many aspects of what the District of Columbia seeks in this document. The District has joined other jurisdictions in an effort to reduce the negative impacts of traffic in residential neighborhoods. To this end, over the years, the city has implemented a wide variety of physical measures and also used standard traffic control devices. The city, however, has now recognized the value of formalizing its traffic calming program so that its transportation decision-makers and citizens will both benefit from an organized process for the management of residential traffic.

Statement of Purpose

It is implied by the above examples of the use of traffic calming devices in residential areas that cities or neighborhood have and are formulating their own traffic calming programs based on their local contexts. In light of this, a set of guidelines for an effective traffic calming program in Washington, D.C. is also needed. This document will serve as these guidelines for the District Department of Transportation (DDOT), and as the basis for DDOT’s development of design standards for implementing traffic calming. It is also aimed at enabling District communities to make more rational requests for traffic calming measures based on their advantages and disadvantages, as presented in Chapter 2. It must be noted that, like the Canadian guide, this document does not provide engineering specifications or standards on any traffic calming devices or measures. These may come later; in the meantime, DDOT can choose to rely on national examples of specifications and standards and engineering judgment. But although engineering standards address important issues related to the design and functionality of traffic calming devices, they are not surrogates for local policy and procedures. A coherent set of local guidelines and procedures is critical for successful traffic calming programs. This document intends to meet that need by providing information on traffic calming measures and the necessary procedures for the development of a well-organized traffic calming program in Washington, D.C. This document is also a resource for individuals and Advisory Neighborhood Commissions (ANC’s) to use to be informed about traffic calming in the District. The resulting awareness could reduce the number of casual requests received by DDOT officials. (For example, it is important to recognize that some

traffic calming devices can contribute to increased fuel consumption, increases in traffic noise, damage to the undercarriage of vehicles, delays to police and emergency vehicles, and relocation of congestion problems.)

Finally, cautionary tales from many surrounding jurisdiction provide solid evidence that traffic calming demands planning based on explicit guidelines, carefully developed policies, and procedures that cover the planning, evaluation, implementation, removal, and maintenance of traffic calming devices in residential areas.

Issues and Concerns with Traffic Calming

Traffic calming measures often arouse concerns among citizens as well as public agencies that provide various services that must utilize local streets. Particular concerns inherent to specific traffic calming measures are discussed in Chapter 2. Those related public services and concerns which the District must be mindful of, such as emergency services, snow removal, drainage, public safety, funding issues and legal issues are discussed below.

Emergency Service Vehicles

Generally, police departments endorse traffic calming measures since they can reduce vehicle speeds and the possibility or severity of accidents, either between vehicles, with one vehicle, or between vehicles and pedestrians and bicyclists. Emergency service providers, however, can be slowed or inconvenienced by certain types of traffic calming measures, so they are often less than supportive of them. Devices such as speed bumps, if not designed well, can require long fire trucks and heavy ambulances to come to almost complete stops. Patients, crews and medical equipment in ambulances may be tossed about by humps. Traffic circles, chicanes or narrowed intersections can prove too tight for long fire vehicles to turn.

While some traffic calming measures present minimal impact on emergency response times, studies have shown that speed humps and traffic circles typically create a delay of up to eleven (11) seconds per measure for fire trucks.⁽¹²⁾ Thus, there is the need to fully understand the impacts of specific installations of traffic calming measures on emergency vehicle responses. The need for specific measures must be balanced against any potential loss in public safety. In recognition of the need for this balance, local governments are beginning to collaborate with police, fire and emergency service providers in designing traffic calming measures that are appropriate for effective services. The desires to ensure fast responses from emergency services and slower overall traffic speeds on neighborhood streets are important to communities, and they must be integrated into any application of traffic calming on a city-wide basis.

Snow Removal

Traffic calming measures that are embedded in pavements may become obscured by snow and could cause damage to snow removal equipment. In addition, icing of measures could lead to uncontrolled sliding of vehicles. In some case, even thoughtful consideration in the design and placement of pavement-based measures may not eliminate all adverse impacts. These concerns must be addressed by careful engineering study before the placement of measures, especially when the topography in question is undulating.

Drainage

Drainage patterns on roadways may be altered by the installation of traffic calming measures. Thus, any road-based traffic calming measure should be considered with an eye towards the drainage characteristics on the street in question.

Funding

Citizens' expectations of rapid implementation of traffic calming measures upon request is often based on a lack of understanding of capital budgeting processes, which generally consider new needs in future budgets, except in emergencies. In most cases, local governments determine how to fund traffic calming programs before they begin to study identified areas. By doing so, unnecessary work is eliminated if funds will not be available for program implementation and maintenance. Typically, traffic calming measures are deployed based on priority levels and available resources as determined by the local government. In many cases, local government officials determine beforehand a prioritized list of programs or projects to be worked on which are usually in phase with their overall planning and implementation programs for a given fiscal year.

Legal Issues

Traffic calming measures must be designed to suit and accommodate the majority in a given community. For example, wherever traffic measures are implemented to improve pedestrian safety or to encourage pedestrian travel, designs must meet requirements set forth in the Americans with Disabilities Act. Other legal issues must be considered as well. DDOT should maintain documents that support the appropriateness of particular traffic calming measures and show that installations are based on objective study processes. The need to reduce liability and its potentially adverse impacts on government expenditures may preclude the consideration of traffic calming measures in some locations.